

REMARKS

Upon entry of the amendment, claims 1, 3-12, 15-21 39, 40, and 42-55 will be pending in the application. Claims 13, 14, and 41 have been cancelled with this amendment, and claims 1, 19, 21 39, 43, 47, and 50 amended. Support for the amendments appears in, e.g., the original claims and in the specification at, e.g., page 4, lines 7-8 (covalent attachment of a separation group), page 4, lines 13-14 (immobilizable nucleotide as a separation group). No new matter is added.

Rejections under 35 USC § 102

Claims 1, 3-13, 17, 18, and 39-46 are rejected as anticipated under 35 USC § § 102(a) and 102(e) by Ju et al., US Patent No. 5,876,936 ("Ju"). Claims 13 and 41 are cancelled. The rejection is traversed to the extent it is applied to the remaining claims as amended.

Claim 1, from which depend claims 3-12, 17 and 18, has been amended to incorporate the subject matter of claim 15 (specifying that the population of DNA molecules is a population of RNA molecules) and claim 21 (specifying that the population of DNA molecules is a population of genomic DNA molecules), which are not subject to the rejection. Accordingly, the rejection as applied to these claims can be withdrawn.

Claim 39, from which depends claims 40 and 42, and claim 43, from which depends claims 44-46, has similarly been amended to require that the populations of nucleic acid molecules is genomic DNA molecules or RNA molecules. Ju does not describe a method using this population of nucleic acid molecules. Therefore, the rejection as applied to the remaining claims can also be withdrawn.

Claims 1, 3-5, 10-13, 17, 21, 39, 50-52 and 55 are rejected as anticipated under 35 USC § 102 (b) by Bukanov et al., Proc. Natl. Acad. Sci. (USA) 95:5516-20, 1998, ("Bukanov"). Claim 13 is cancelled. The rejection is traversed to the extent it is applied to the remaining claims as amended.

Claim 1, from which depends claims 3-5, 10-12, 17, and 21, has been amended to require that the separation group be covalently attached to the targeting element. Bukanov does not teach a method with this feature. Therefore, this reference does not describe the claim invention as amended.

Claim 39 has similarly been amended to require that the separation group be covalently attached to the targeting element. Applicants note that this feature corresponds to the subject matter of now cancelled claim 41, which depended from claim 39 and which was not subject to the rejection.

Claim 50, from which depends claims 51, 52, and 55, has also been amended to require that the separation group be covalently attached to the targeting element.

Therefore, none of the claims as amended are described by Bukanov.

Claim 19 is rejected as anticipated under 35 USC § 102(e) by Engelhardt et al., US Patent No. 6,221,581. The rejection is traversed to the extent it is applied to the claims as amended.

Claim 19 has been amended to specify that the separation group is an immobilizable nucleotide. Engelhardt does not describe a method with this feature. Accordingly, this rejection can be withdrawn.

In view of the foregoing comments, Applicants respectfully request reconsideration and withdrawal of the rejections for anticipation.

Rejections under 35 USC § 103(a)

Claims 14-16 and 47-49 are rejected as unpatentable over Ju and Engelhardt. Claim 14 has been cancelled. The rejection is traversed as applied to the remaining claims.

Claim 15 and 16 depend from claim 1, from which depends claims 15 and 16, and claim 47, from which depends claims 48 and 49, as amended are drawn to a method for separating a polynucleotide molecule from a population of nucleic acid molecules that includes, *inter alia*, providing a polynucleotide molecule in a population of nucleic acid molecules that are genomic DNA or RNA molecules. The remaining steps recited in the methods specify that a targeting element binds to this polynucleotide molecule(step b), and that a separation group is covalently attached to the bound targeting element (step c); and that this polynucleotide molecule is then immobilized via the attached separation group.

The combination of Ju and Engelhardt do not make prima facie obvious a method in which a polynucleotide molecule present in a population of genomic DNA or RNA molecules is immobilized using the recited steps. The Examiner acknowledges that Ju is silent regarding RNA or genomic DNA (see page 11, second paragraph of the Office Action) and lacks any suggestion that its method could be used to isolate a polynucleotide molecule that is already present from the outset in a starting population of genomic DNA or RNA molecules.

Ju instead describes a method of nucleic acid sequencing with solid phase capture terminators. To the extent that it provides any teaching about a template nucleic acid it reports that its method is used on cloned DNA (col. 6, lines 17-20):

[T]he nucleic acids which are capable of being sequenced by the subject methods are generally deoxyribonucleic acids that have been cloned in appropriate vector, where a variety of vectors are known in the art and commercially available . . .

Engelhardt does not overcome the deficiencies of Ju. Engelhardt does not specifically mention RNA or genomic DNA, nor does this reference provide any motivation for modifying Ju so that the methods described in Ju could be applied to isolating a polynucleotide molecule that is present from the outset in a starting population of genomic DNA or RNA molecules.

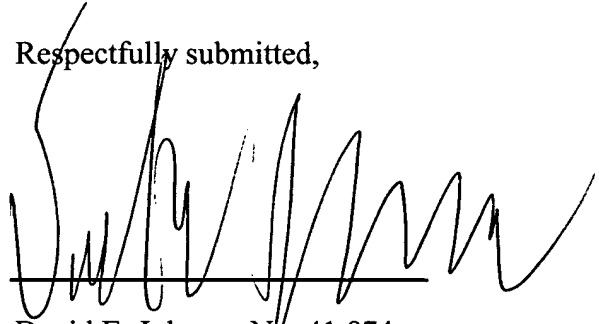
Claims 53 and 54 are rejected as obvious over Bukanov and Engelhardt. The rejection is traversed.

Claims 53 and 54 depend from claim 50, which has been amended to require that the separation group be covalently attached to the targeting element. Bukanov fails to describe (as discussed above) or suggest a method in which a separation group is covalently attached to a targeting element. While Englehardt is cited by the Examiner for describing a method of separating genomic DNA and for detecting single nucleotide polymorphisms (SNPs), it too lacks any description or suggestion of a method in which a separation group is covalently attached to a targeting element. Therefore, the combination of references fails to make obvious the invention of claim 50, from which depend 53 and 54.

In view of the foregoing comments, Applicants request reconsideration and withdrawal of the rejections for obviousness.

Applicants submit that the application is in condition for allowance, and request such action. A petition for a one month extension of time accompanies this response. The Commissioner is authorized to charge payment of any fees required in connection with the papers transmitted herewith, or credit any overpayment of same, to Deposit Account No. 50-0311 (Reference No. 22650-001CIP).

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'David E. Johnson', is written over a horizontal line.

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